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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/640,703	08/18/2000	Je Hong Kim	2658-0203P	6489
2292	7590	10/17/2003	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			DUONG, THOI V	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 10/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/640,703

Applicant(s)

KIM, JE HONG

Examiner

Thoi V Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-17,19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-17,19 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the Amendment, Paper No. 8, filed August 26, 2002.

Accordingly, claims 1, 3-5, 11, 17, 19 and 21 were amended, and claims 2, 18 and 20 were cancelled. Currently, claims 1, 3-17, 19 and 21 are pending in this application.

2. Applicant's arguments with respect to claims 1, 3-17, 19 and 21 have been fully considered and are persuasive. Therefore, the finality of the last office action has been withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-5, 7, 9-13, 17, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rudisill et al. (USPN 5,339,179) in view of Hiyama et al. (USPN 6,104,454).

As shown in Figs. 1-3, Rudisill et al. discloses a back light unit for a liquid crystal display, comprising:

a lamp 38 in a lamp housing 40;

a light-guide plate 36 aside said lamp and said lamp housing, said lightguide plate including cones 48 distributed in a pattern (see Fig. 3, item 56); and

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a reflective plate placed below said light-guide plate (col. 6, lines 4-6 and see also Fig. 5C, item 74),

wherein said cones are formed on an upper surface of said light-guide plate, and a density of cones increases as a distance from said lamp increases (col. 6, lines 13-18); accordingly, spacings of cones of the cone pattern is controlled to correspond to a distribution of the light and said cones are more densely populated around partially dark areas of said light-guide plate since the partially dark areas are the areas further away from the lamp; and

wherein a diameter of a cone of the cone pattern ranges from 250 to 1270 micrometers and a vertical angle of a cone of the cone pattern ranges from 60° to about 150° according to the side wall angle of the cone (col. 6, lines 19-37). Thus, if the vertical angle and the diameter of the cone are 90° and 400 micrometers respectively, the height of the cone will be 200 micrometers.

Rudicill et al. discloses a backlight unit for a liquid crystal display that is basically the same as that recited in claims 1, 3-5, 7, 9-13, 17, 19 and 21 except for a light-path converter and a diffusion sheet disposed above said light-guide plate. As shown in Fig. 1, Hiyama et al. discloses a backlight unit for a liquid crystal display comprising:

a light-path converter 50 to control a progress direction of the light in such a manner that the light outputted from the light-guide plate is progressed in a direction perpendicular to a liquid crystal panel (col. 5, lines 23-35); and

a diffusion sheet 60 disposed above said light-path converter for diffusing the light passing through the light-path converter into the liquid crystal panel (col. 4, lines 50-62),

wherein the light-path converter is a backward prism sheet having a desired between angle (col. 5, lines 36-39).

As shown in Figs. 4, 8A, 8B, 9A and 9B, Hiyama et al. also discloses that the light-path converter is a hologram sheet 70, wherein a space and a shape of the hologram pattern are controlled to correspond to an output angle of the light progressing into the liquid crystal panel (col. 6, lines 49-67).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the backlight unit for a liquid crystal display of Rudicill et al. with the teaching of Hiyama et al. by forming a light-path converter and a diffuser to obtain a bright display at wide view angle under small power consumption (col. 4, lines 60-62).

5. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rudisill et al. (USPN 5,339,179) in view of Hiyama et al. (USPN 6,104,454) as applied to claims 1, 3-5, 7, 9-13, 17, 19 and 21 above and further in view of Ohara et al. (USPN 5,844,720).

The back light unit of Rudicill et al. as modified in view of Hiyama et al. above includes all that is recited in claims 6 and 14 except that the light-path converter is not a forward prism sheet having a vertical angle ranging from about 90° to 130°. As shown in Figs. 1 and 2, Ohara et al. discloses a back light unit 50 for a liquid crystal display

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comprising a forward prism sheet disposed on top of a light-guide plate 6 and having a vertical angle ranging from 70° to 110° (col. 3, lines 27-48) for improvement in display brightness (col. 3, lines 28-30). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the back light unit of Rudicill et al. with the teaching of Ohara et al. by employing a forward prism sheet having a proper vertical angle to improve the display brightness.

6. Claims 8, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rudisill et al. (USPN 5,339,179) in view of in view of Hiyama et al. (USPN 6,104,454) as applied to claims 1, 3-5, 7, 9-13, 17, 19 and 21 above and further in view of Yokoyama et al. (USPN 5,899,552).

The back light unit of Rudicill et al. as modified in view of Hiyama et al. above includes all that is recited in claims 8, 15 and 16 except that the vertical angle of the backward prism is not above about 100° . As shown in Fig. 19, Yokoyama et al. discloses a back light unit BL for producing a uniform and bright illuminating light (col. 4, lines 64-67), comprising a backward prism 7 placed above a light-guide plate 61, wherein the prism has a vertical angle from 80° to 120° (col. 32, lines 51-55 and col. 35, lines 23-58). Accordingly, a desired between angle of the backward prism sheet is well within 45° . Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the back light unit of Rudicill et al. with the teaching of Yokoyama et al. by employing a backward prism as a light-path converter having a vertical angle of above about 100° so as to improve the display brightness.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

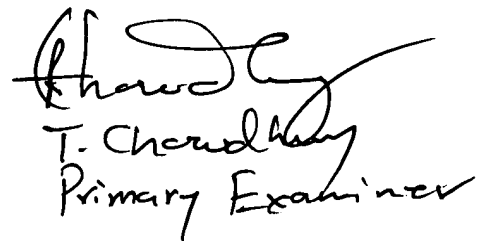
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (703) 305-3492.

Thoi Duong



10/06/2003



T. Choudhary
Primary Examiner